

Notice of Allowability

Application No.

10/766,665

Examiner

Tung X. Le

Applicant(s)

LEE ET AL.

Art Unit

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed on 01/31/2006.
2. ☒ The allowed claim(s) is/are 1-11.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☒ None of the:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 01/27/2004
- ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
- ☐ Examiner's Amendment/Comment
- ☒ Examiner's Statement of Reasons for Allowance
- ☐ Other _____

DONWONG**SUPERVISORY PATENT EXAMINER**

DETAILED ACTION

1. The amendment filed on January 31, 2006 is acknowledged.

Allowable Subject Matter

2. Claims 1-11 are allowed.
3. The following is an examiner's statement of reasons for allowance:

Regarding claim 1, the prior art discloses an antenna for an inductively coupled plasma generator with a chamber for processing an object received in the chamber with plasma, the antenna comprising a set of at least two loop antenna elements each having a power end for applying radio frequency power thereto and a ground end for connecting to a ground. However, the prior art does not disclose an antenna for an inductively coupled plasma generator comprising a set of at least two loop elements disposed adjacent to one another and in generally parallel relation with one other, each of the loop antenna elements having a lowered portion at a central area between the powered end and the ground end of each of the loop antenna elements are disposed at a location far from the chamber of the plasma generator and the lowered portion of each of the loop antenna elements are disposed at a location closer to the chamber.

Claims 2-3 and 5-11 are allowed since they are dependent on claim 1.

Regarding claim 4, the prior art fails to disclose or fairly suggest an internal antenna and an external antenna, each rectangular shaped, are parallel connected to each other, the internal antenna being installed such that two rectangular antenna elements are symmetrically superposed in two-ply loops, the external antenna being installed such that four L-shaped antenna elements, each having two sides, are

symmetrically disposed in two-ply loops, and wherein each powered end is disposed farthest from the chamber and each ground end is disposed near to the chamber.

Citation of Relevant Prior Art

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Chen et al. (U.S. 6,463,875 B1) discloses a multiple coil antenna for inductively coupled plasma generation systems;

Nogami (U.S. 6,436,304 B1) discloses a plasma processing method;

Stimson et al. (U.S. 6,297,595 B1) discloses a method and apparatus for generating a plasma;

Ishii et al. (U.S. 6,350,347 B1) discloses a plasma processing apparatus;

Howald et al. (U.S. 6,842,147 B2) discloses a method and apparatus for producing uniform processing rates;

Podger (U.S. 2003/0234744 A1) discloses a multiloop antenna elements;

Appleyard (U.S. 2003/0201722 A1) discloses a plasma processing apparatus;

Wilcoxson et al. (U.S. 2003/0189524 A1) discloses an antenna for producing uniform process rates; and

Matsuda et al. (U.S. 2002/0018025 A1) discloses a power supply antenna and power supply method.


Inquiry

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung X. Le whose telephone number is 571-272-6010. The examiner can normally be reached on 8:30 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 571-272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner
Tung Le
AU 2821


DON WONG
SUPERVISORY PATENT EXAMINER